US010959525B2

(12) **United States Patent**
Browning et al.

(10) **Patent No.: US 10,959,525 B2**
(45) **Date of Patent: Mar. 30, 2021**

(54) **COLLAPSIBLE SWIVEL CHAIR**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/381,174**

(22) Filed: **Apr. 11, 2019**

(65) **Prior Publication Data**

US 2019/0231075 A1 Aug. 1, 2019

Related U.S. Application Data

(63) Continuation of application No. 15/661,895, filed on Jul. 27, 2017, now Pat. No. 10,299,599.

(51) **Int. Cl.**
A47C 3/18 (2006.01)

(52) **U.S. Cl.**
CPC ***A47C 3/18*** (2013.01); *Y10T 403/32213* (2015.01)

(58) **Field of Classification Search**
CPC A47C 3/18; A47C 3/185; A47C 16/025; F16C 11/04; F16C 11/10; F16C 11/103; F16G 15/08; Y10T 403/32213; Y10T 403/32319; Y10T 403/32401
USPC 403/78, 91, 101; 297/344.21, 344.22, 297/344.26
See application file for complete search history.

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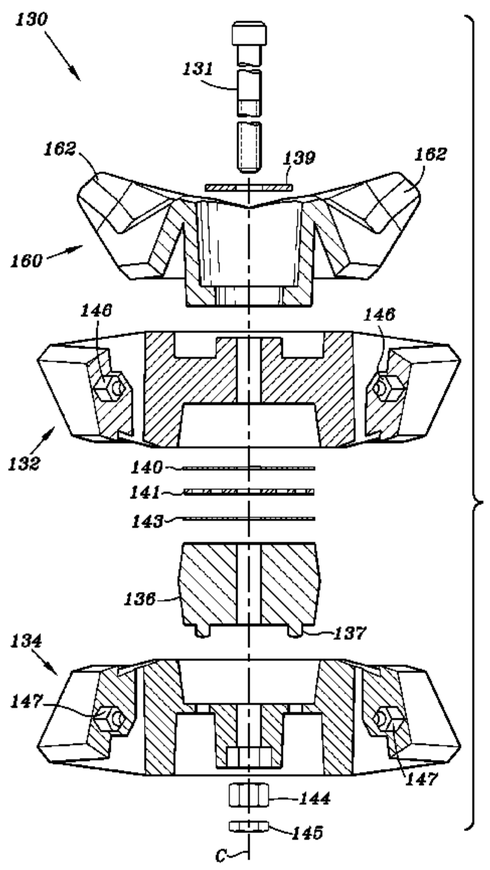
(57) **ABSTRACT**

A chair including a swivel assembly. The chair can include three or more arms pivotally connected to the swivel assembly and selectively moveable between an open position and closed position. The chair can also an arm lock disposed on top of the swivel assembly, where the arm lock is selectively moveable between a locked position and unlocked position. The chair can also include a seat removably connected to a distal end of each arm.

16 Claims, 13 Drawing Sheets



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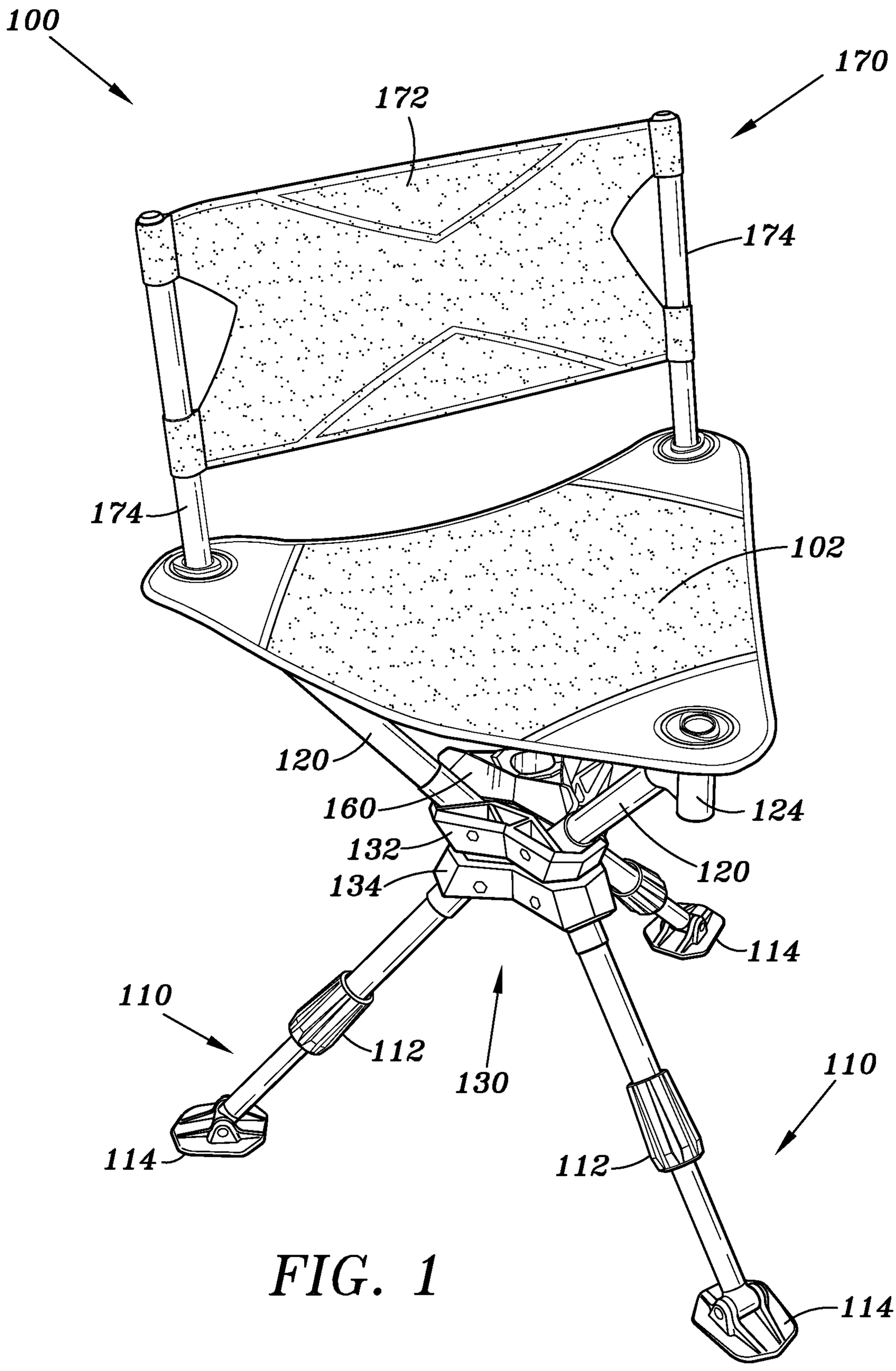
100
170
172
174
174
102
120
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124
132
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134
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112
130
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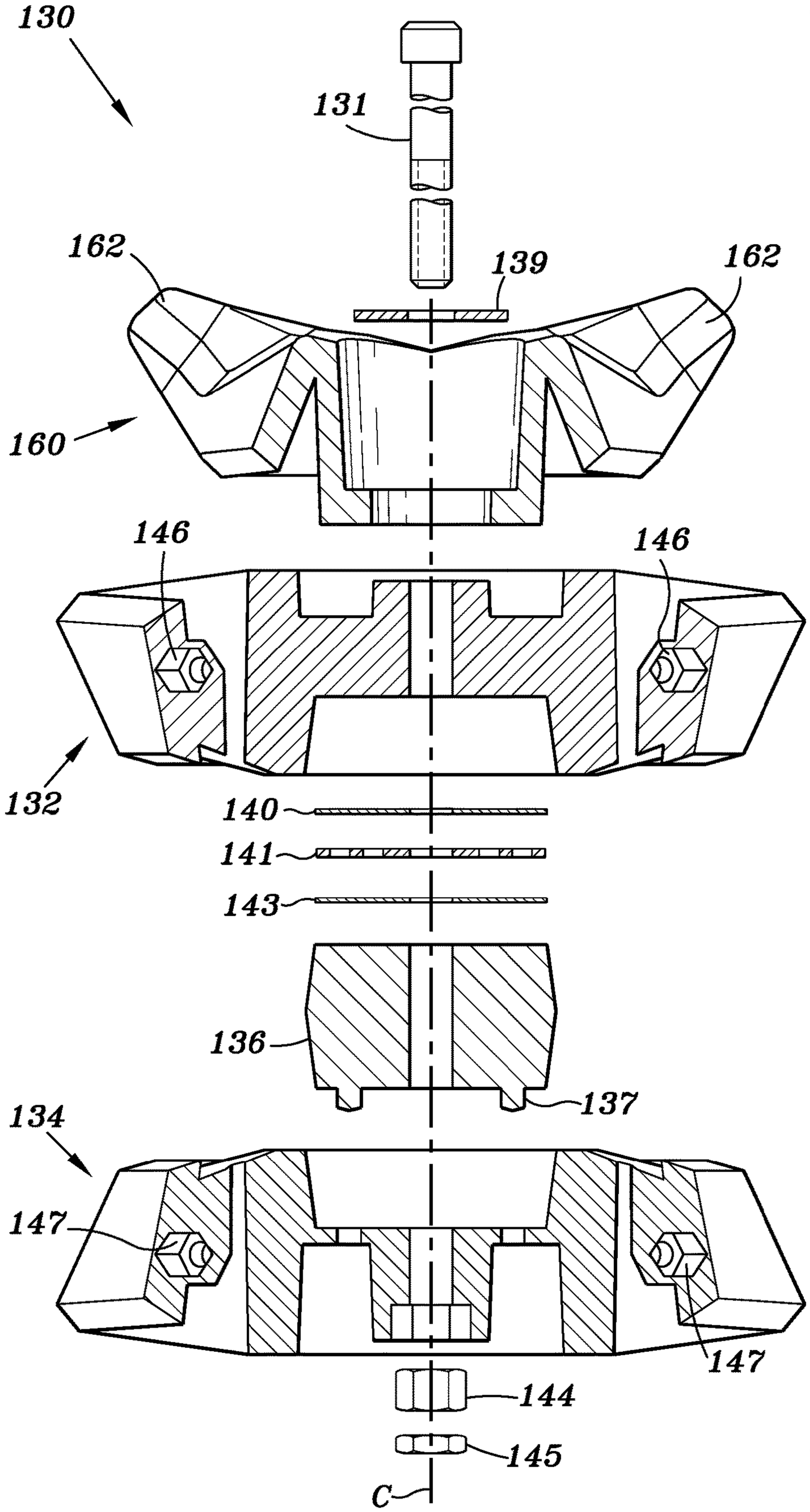
110
112
114

FIG. 1


130
131
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139
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160
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132
140
141
143
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137
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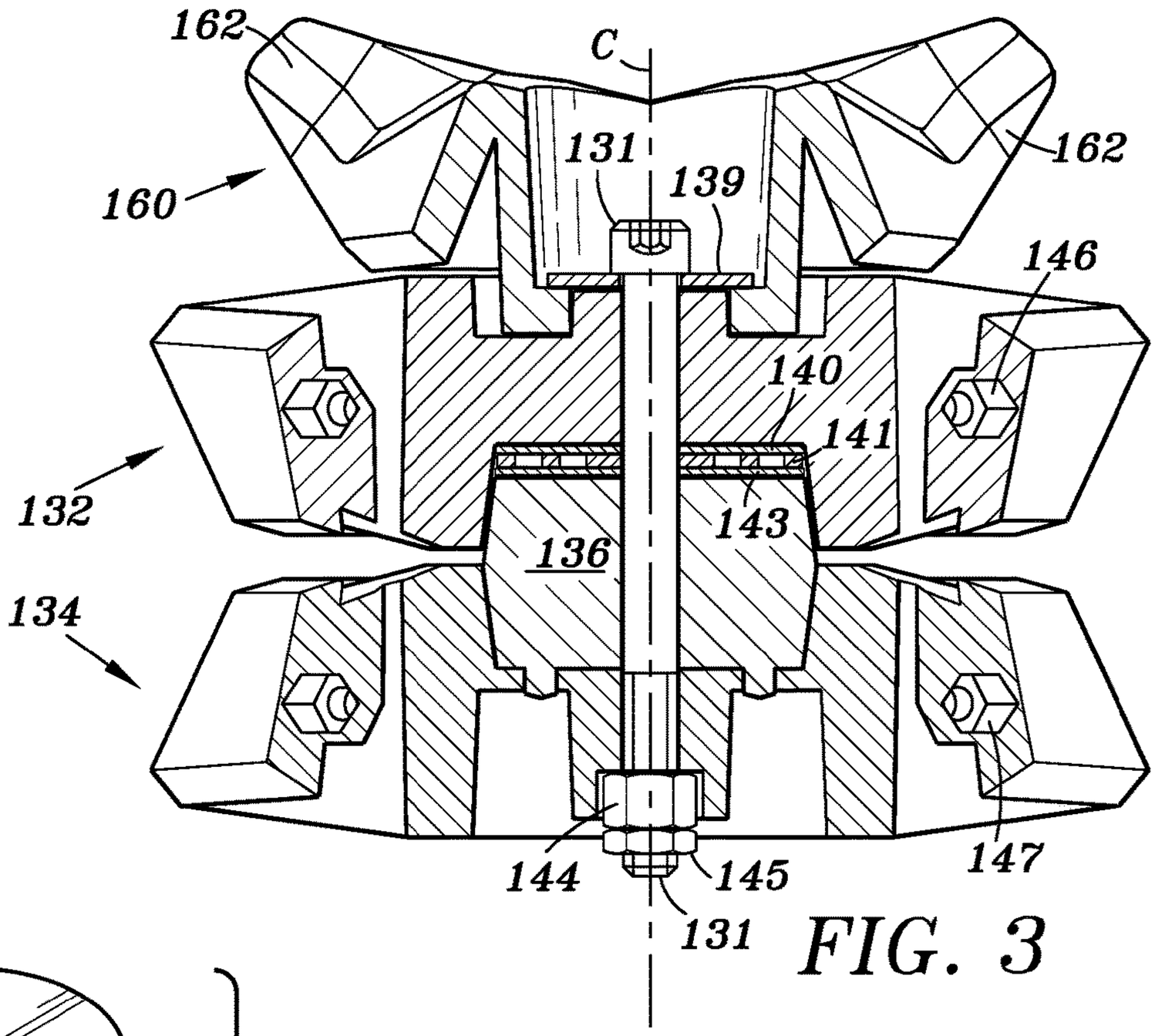
144
145
C

FIG. 2


162
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131

FIG. 3

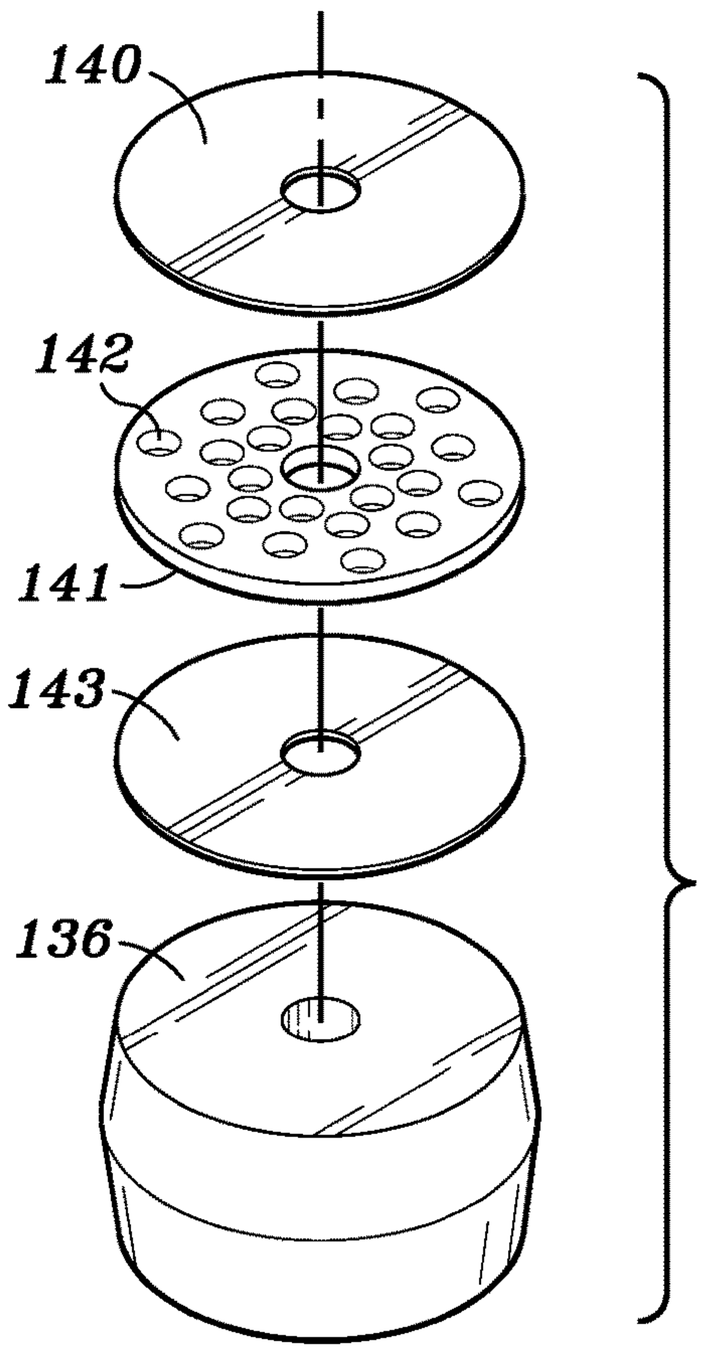

140
142
141
143
136

FIG. 4

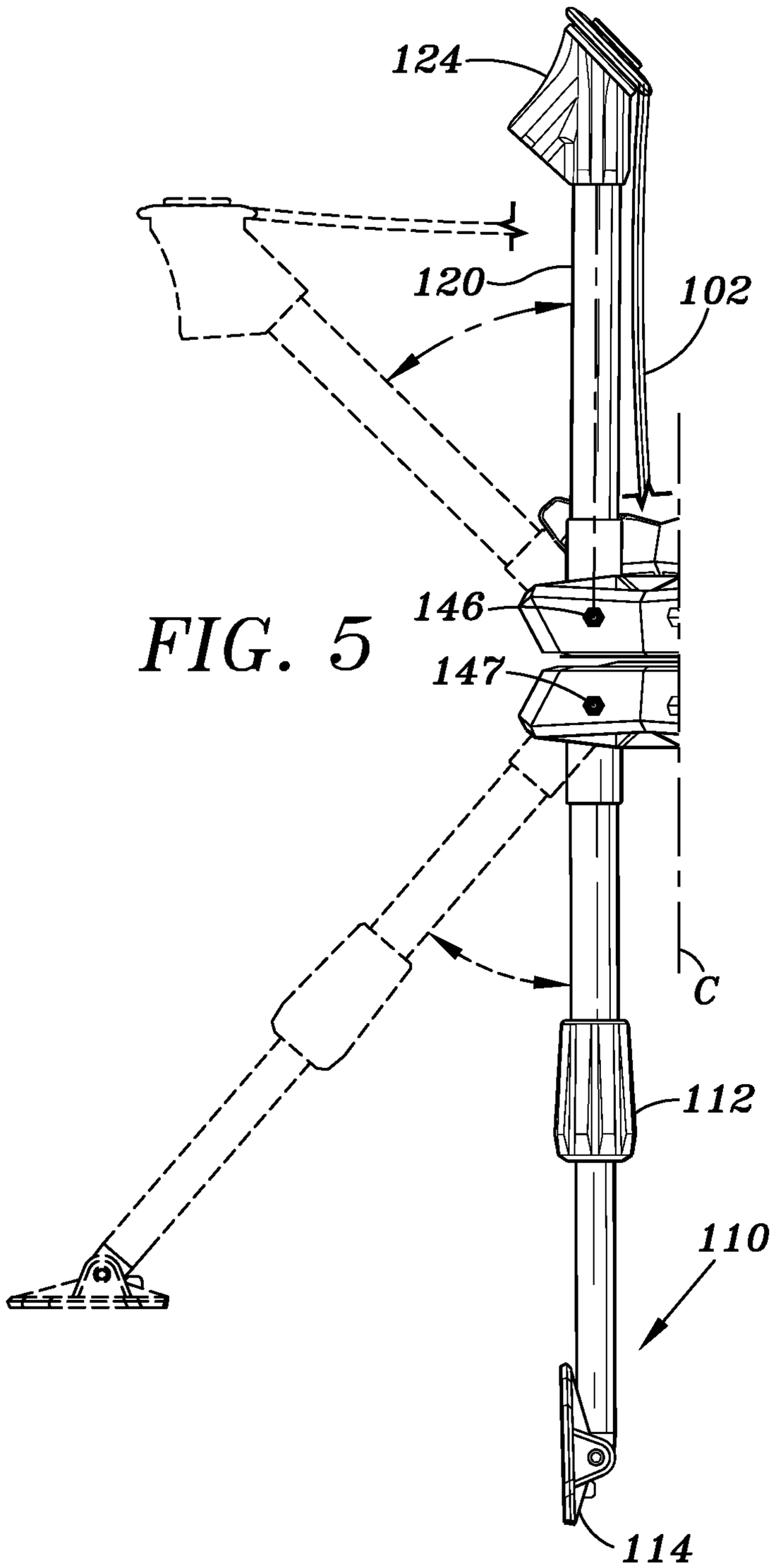
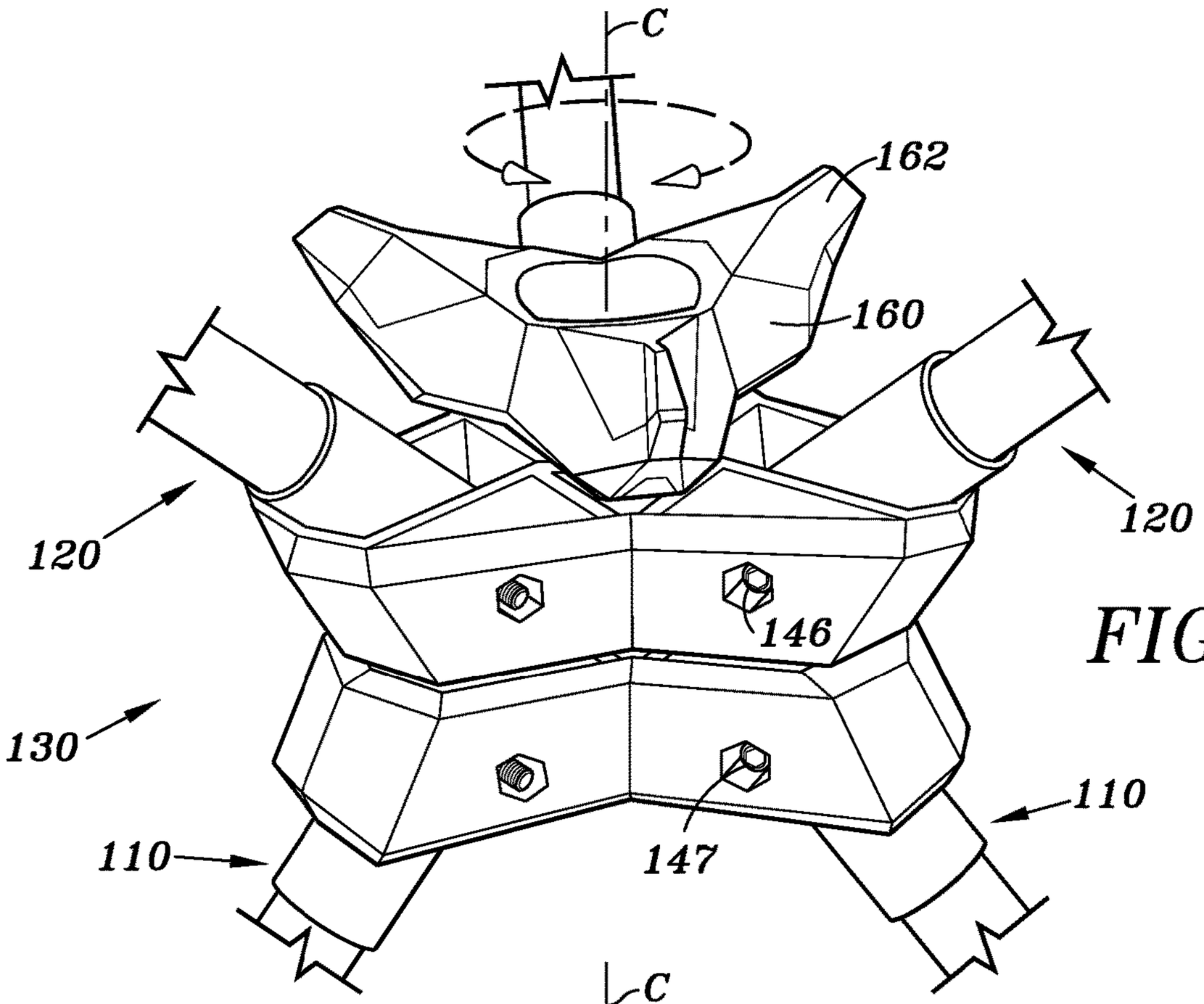


FIG. 5


C
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130
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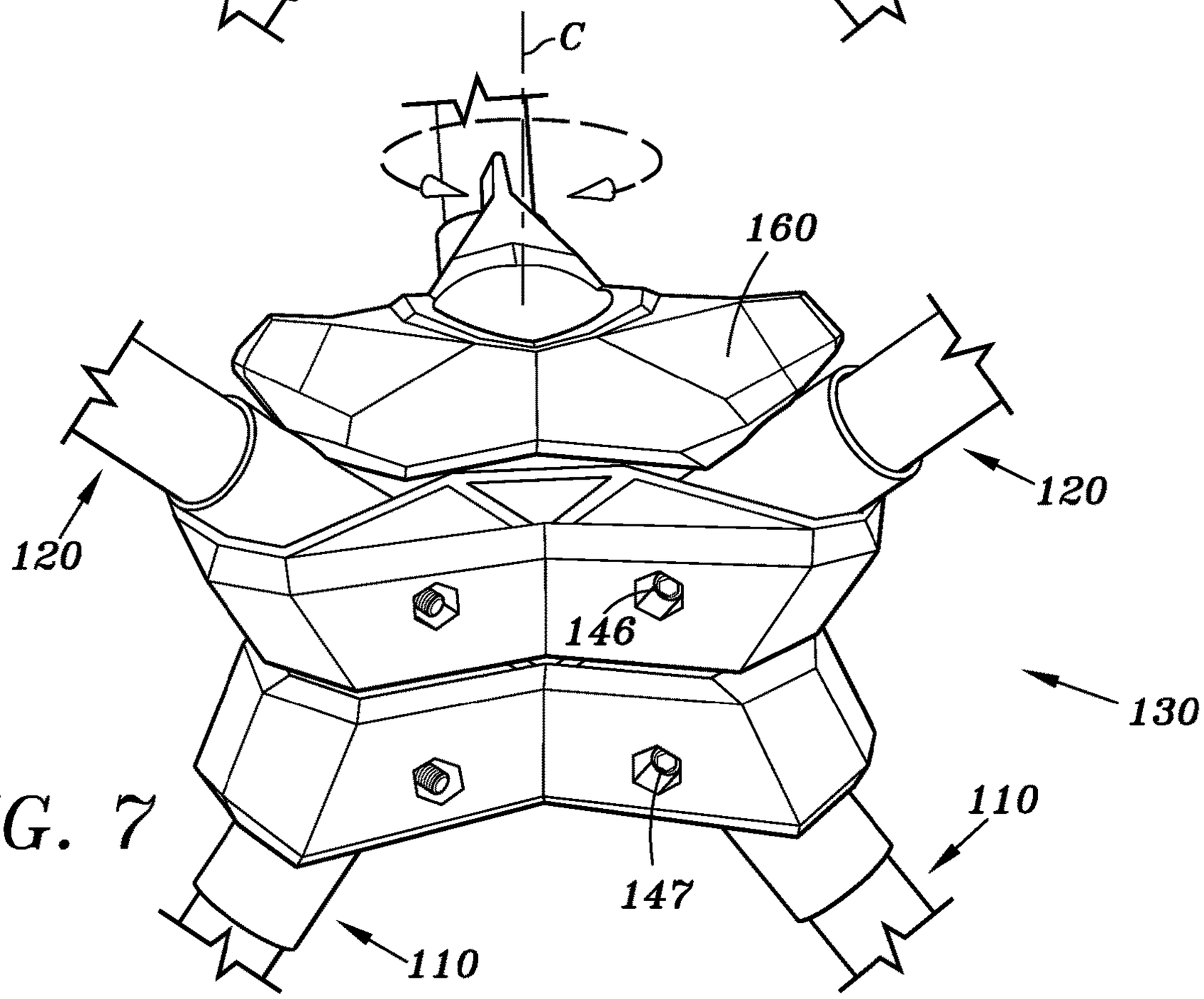
FIG. 6


C
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130
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FIG. 7

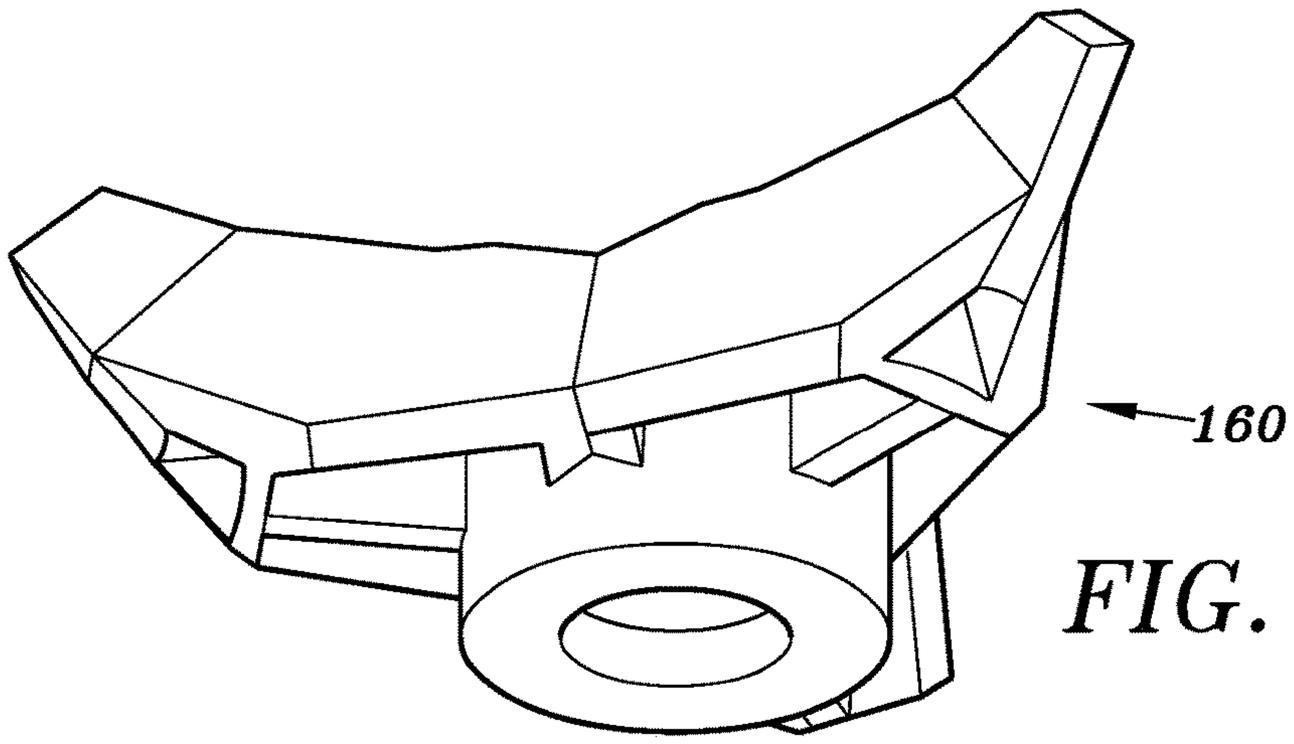


FIG. 8

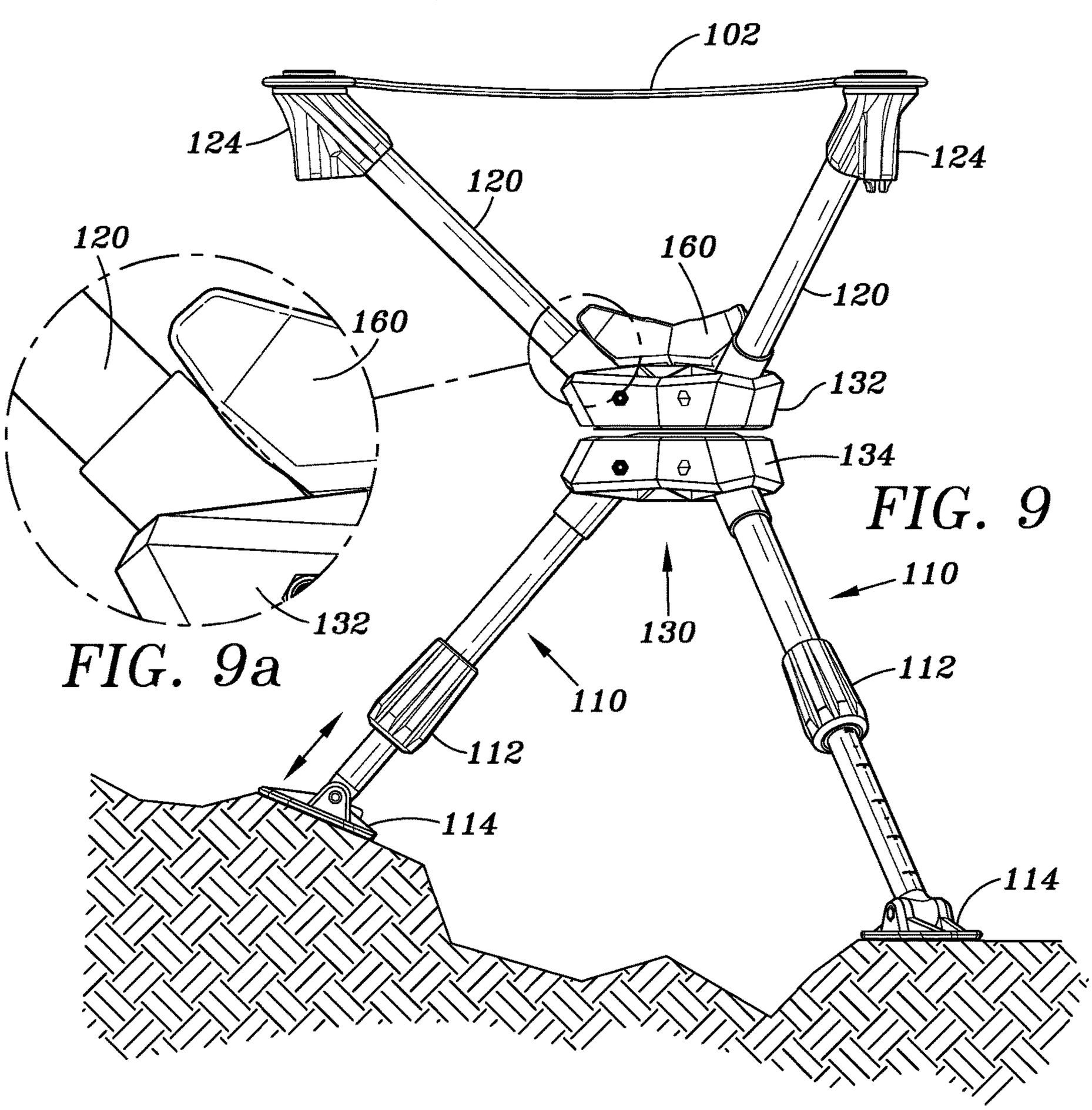


FIG. 9

FIG. 9a

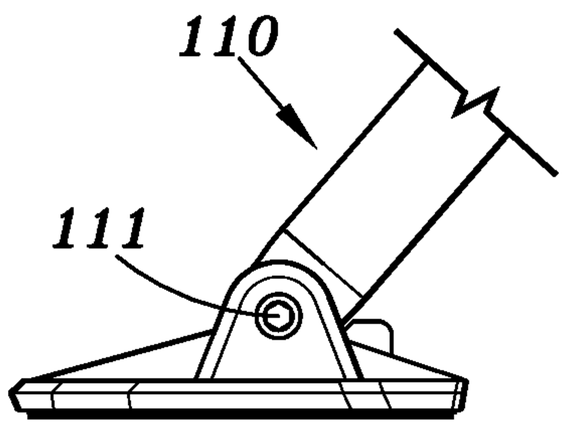


FIG. 10a

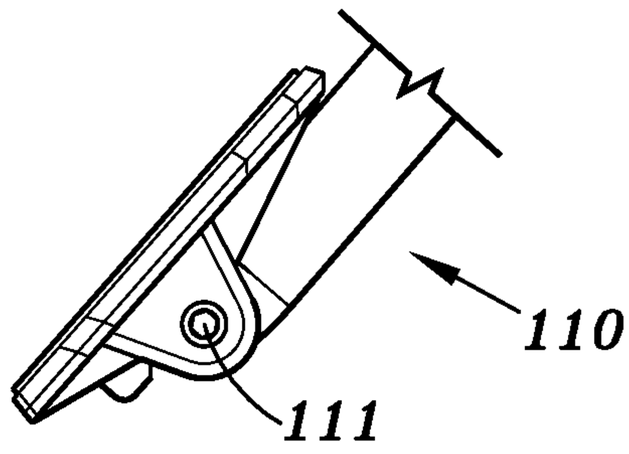


FIG. 10b

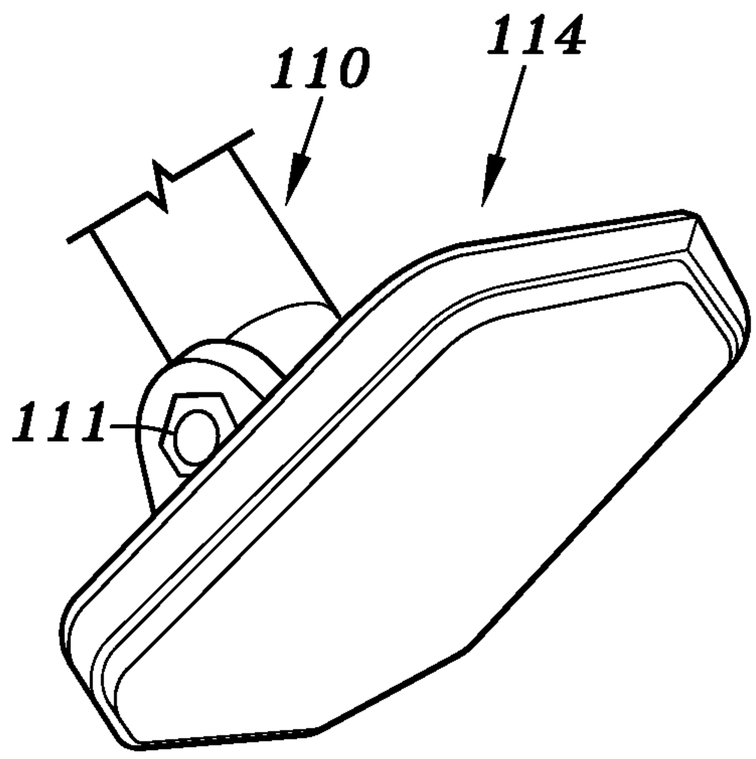


FIG. 11

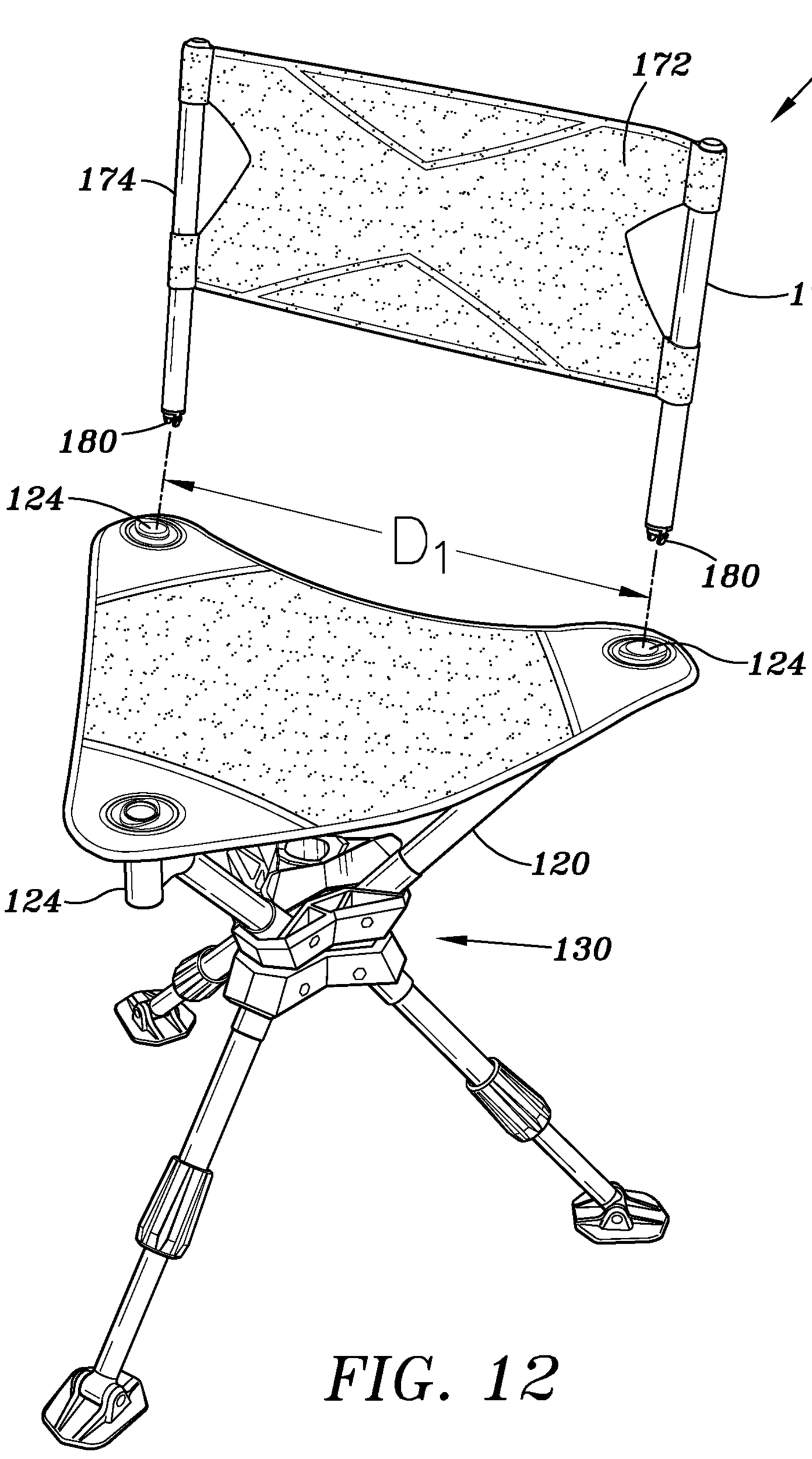


FIG. 12

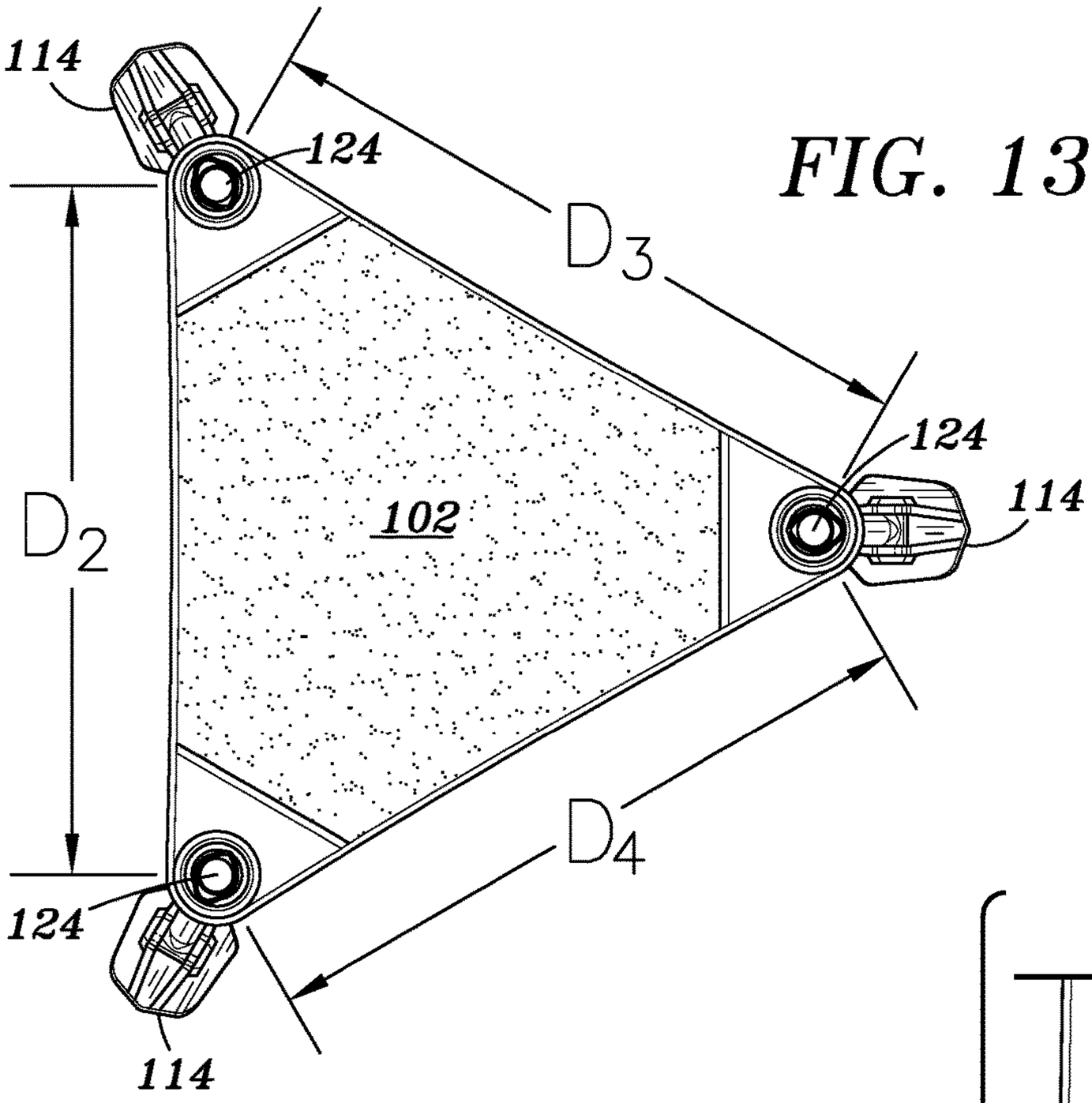


FIG. 13

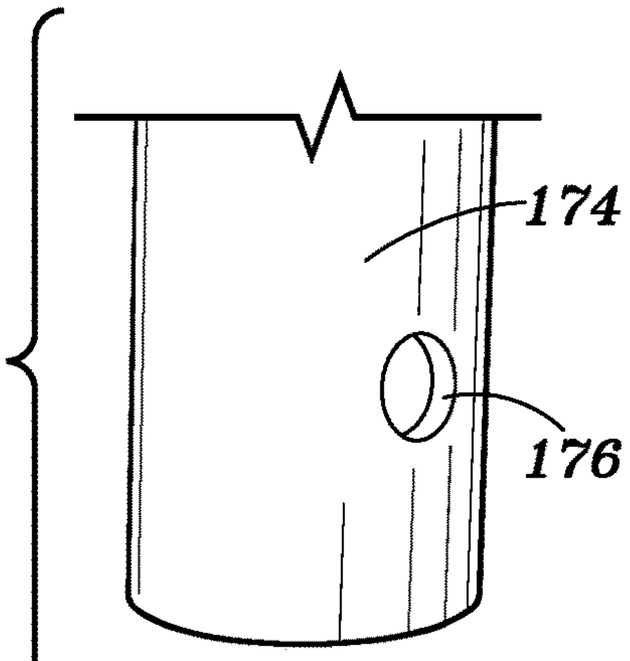


FIG. 14

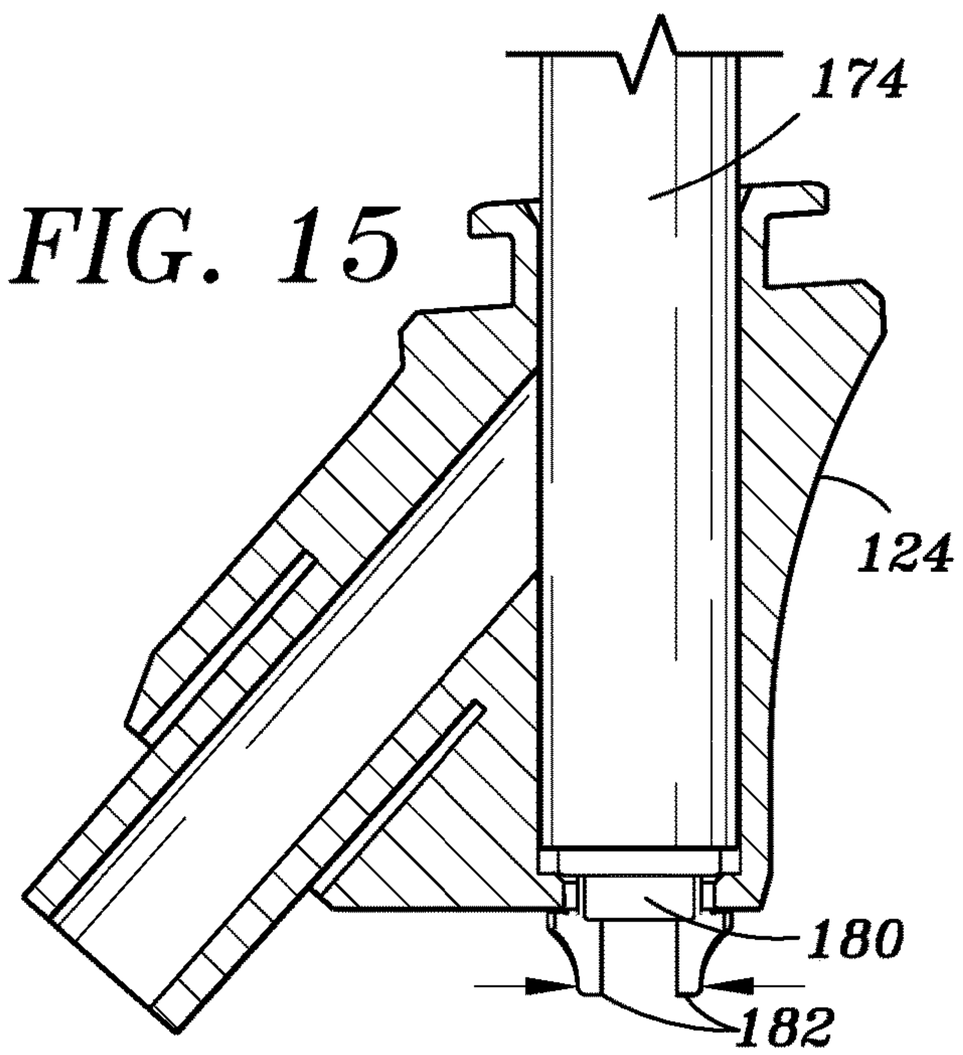
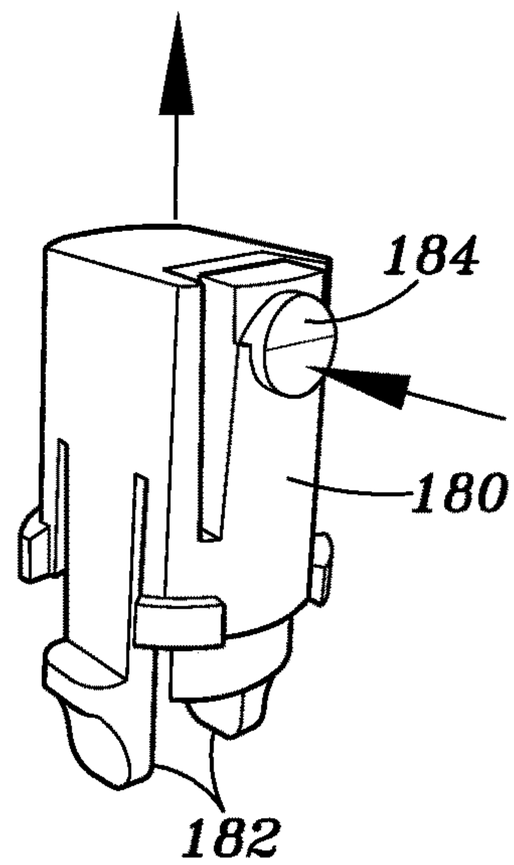


FIG. 15



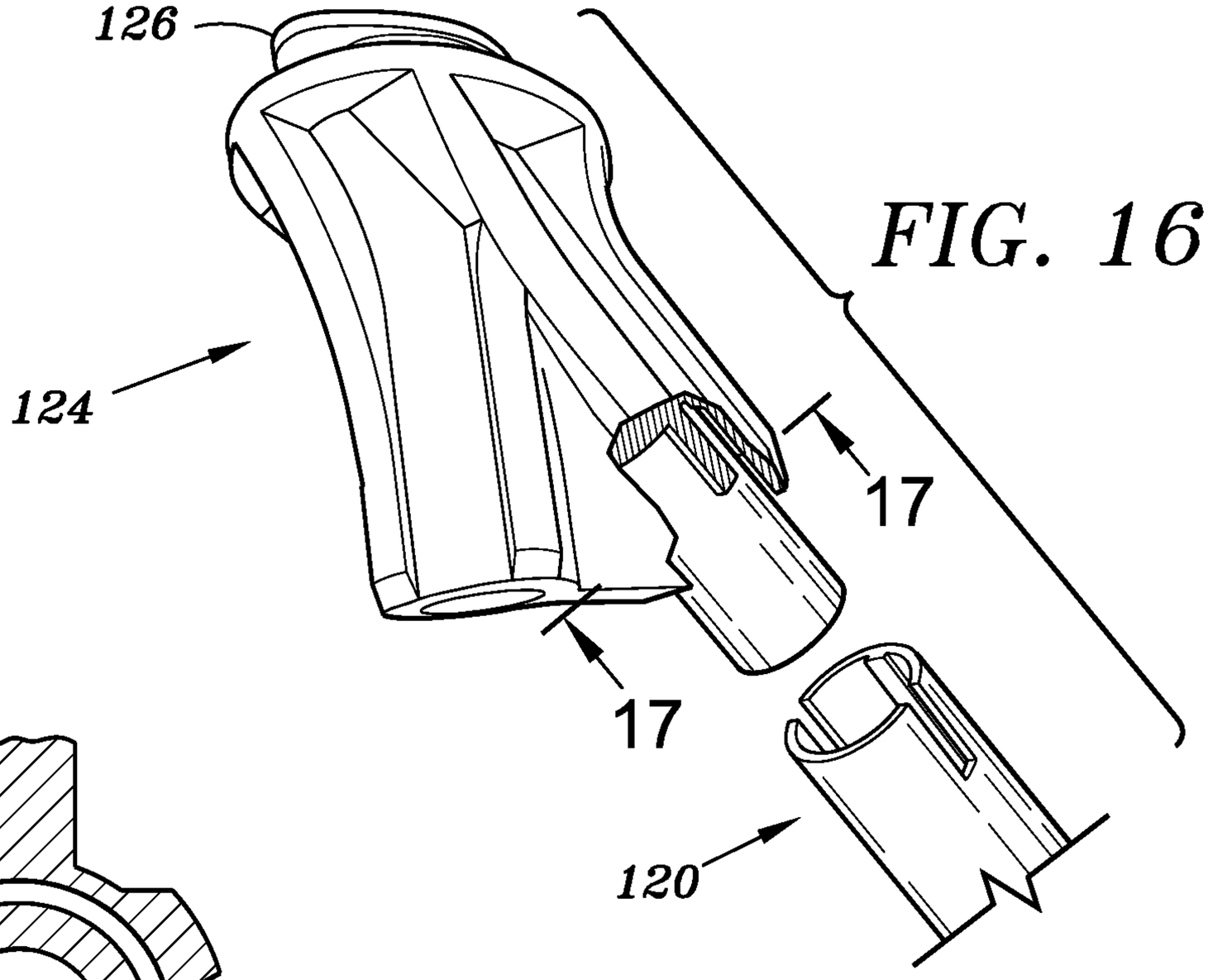


FIG. 16

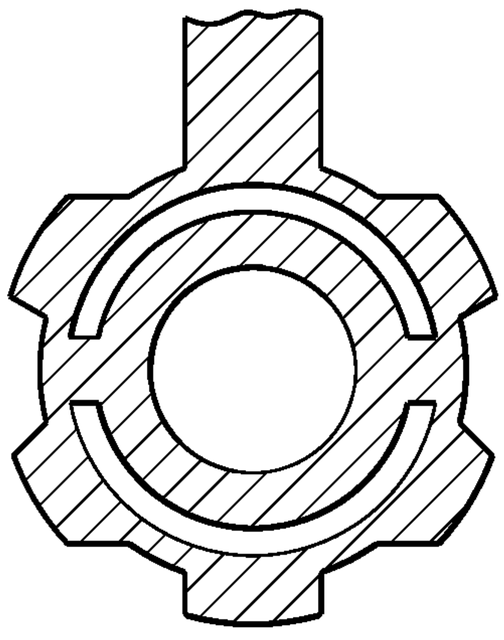


FIG. 17

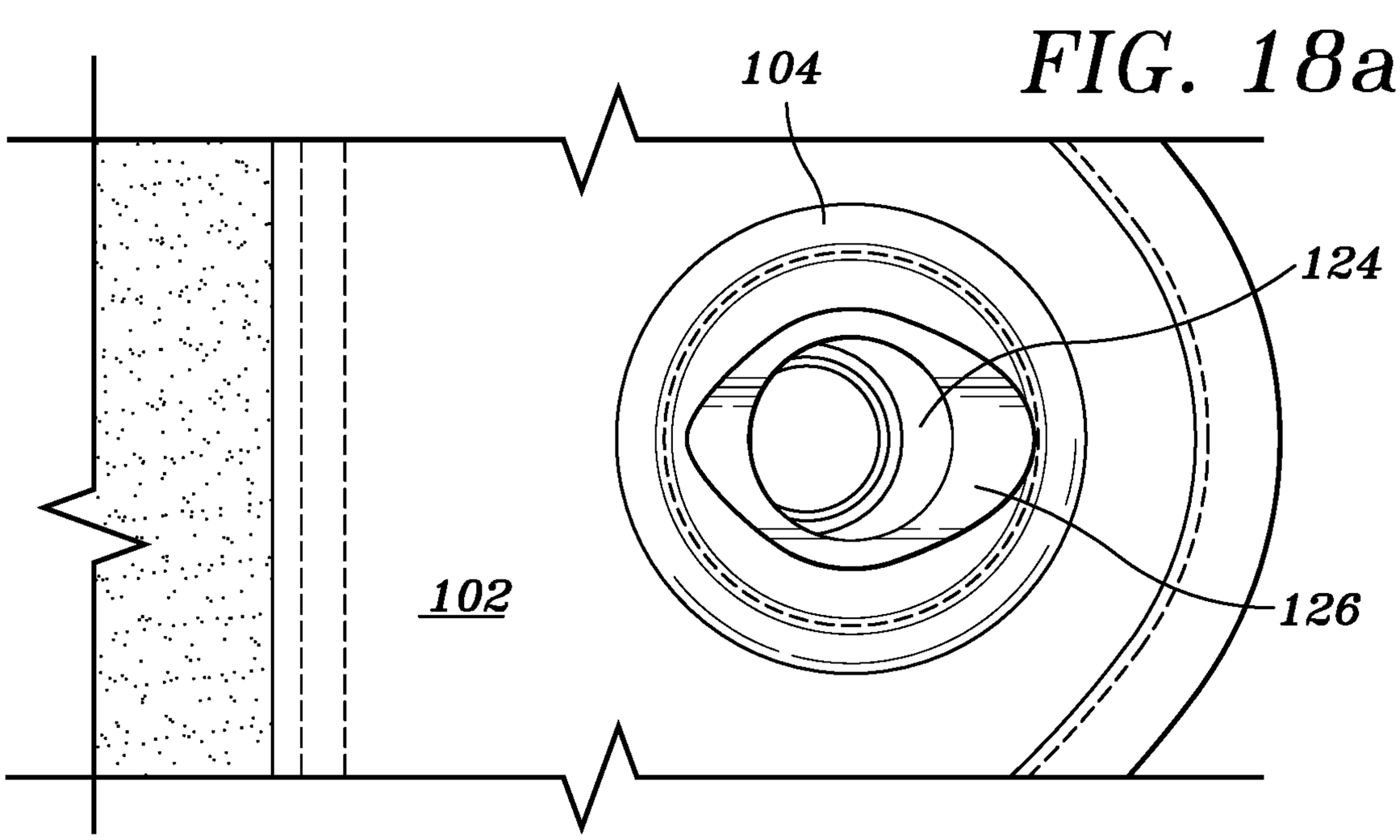


FIG. 18a

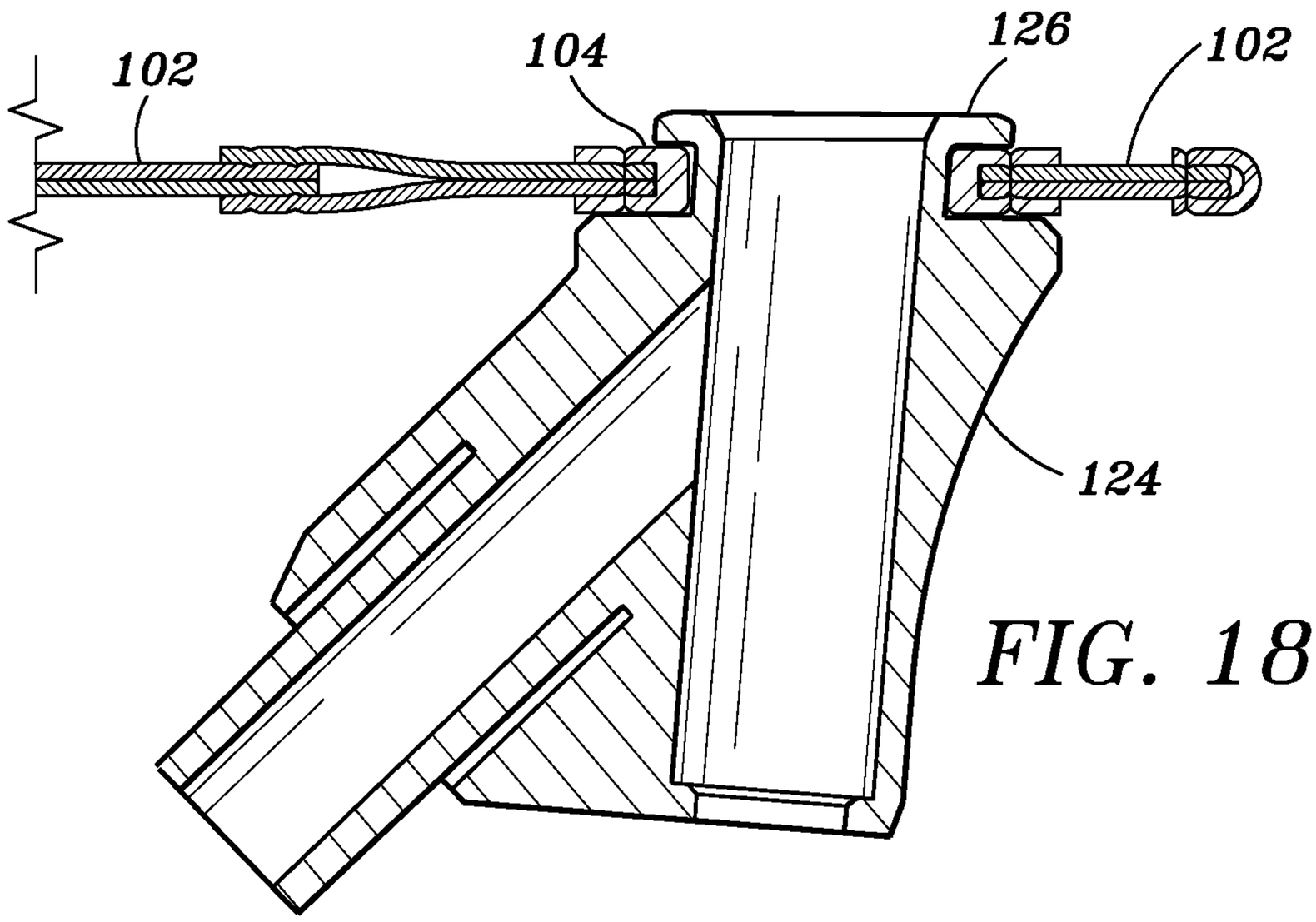


FIG. 18b

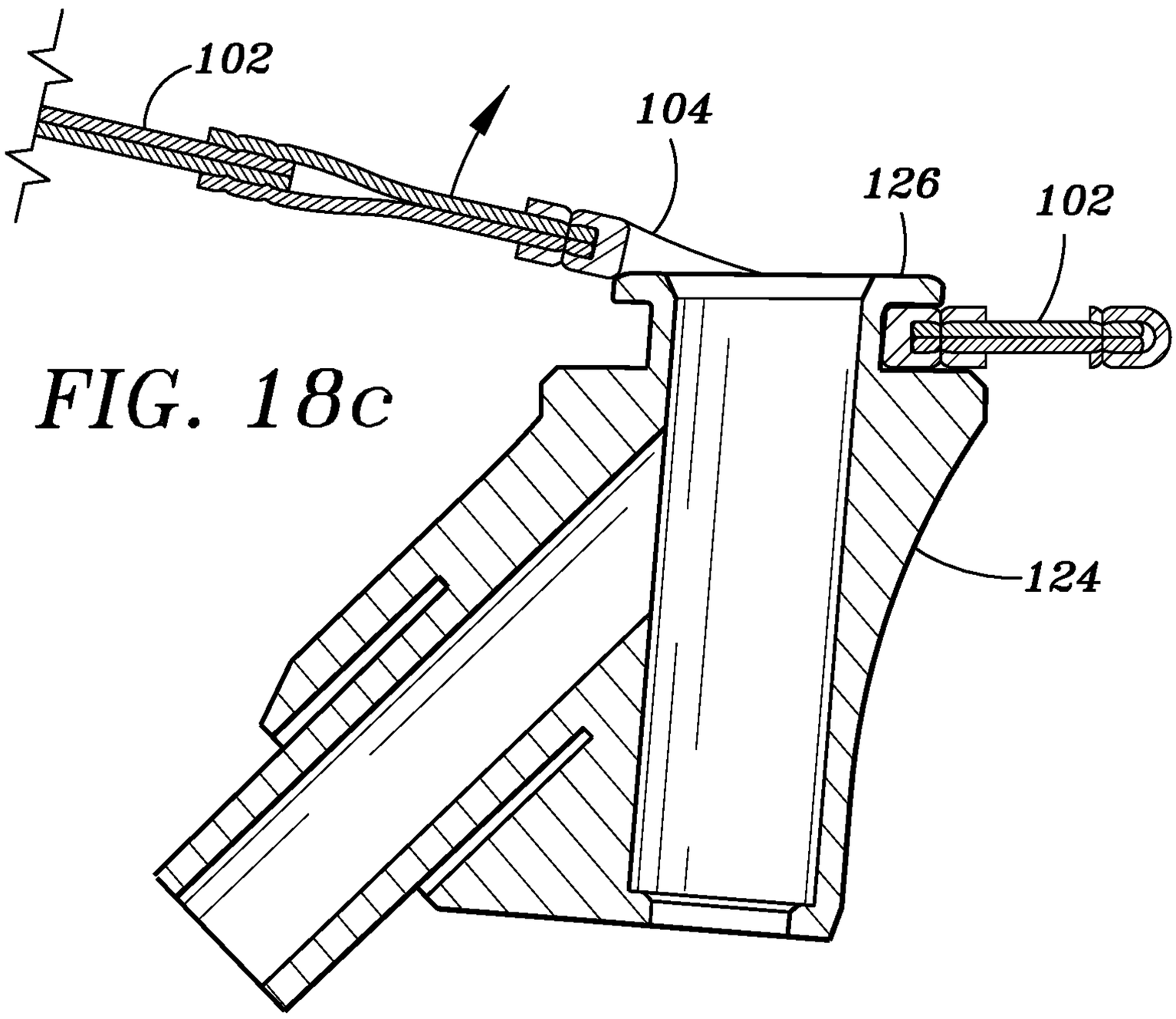


FIG. 18c

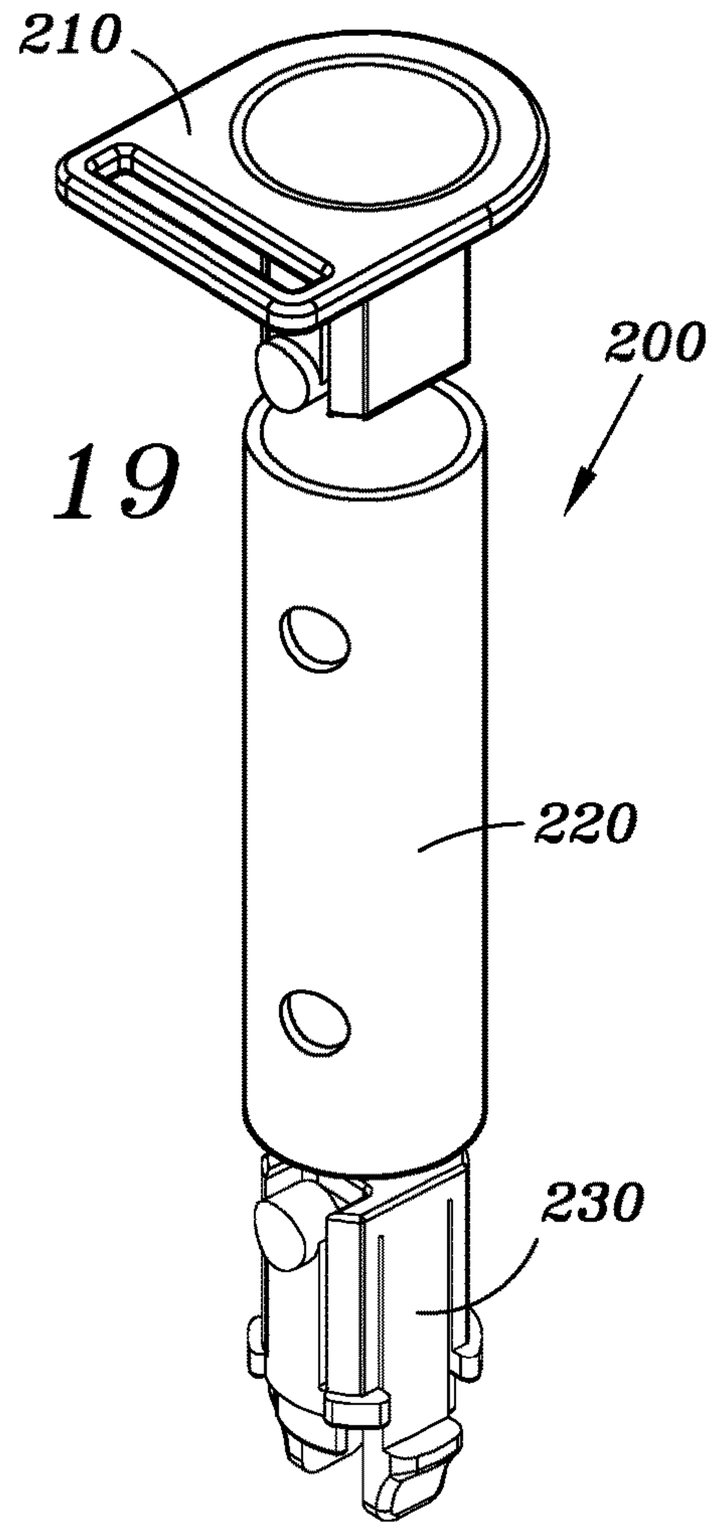


FIG. 19

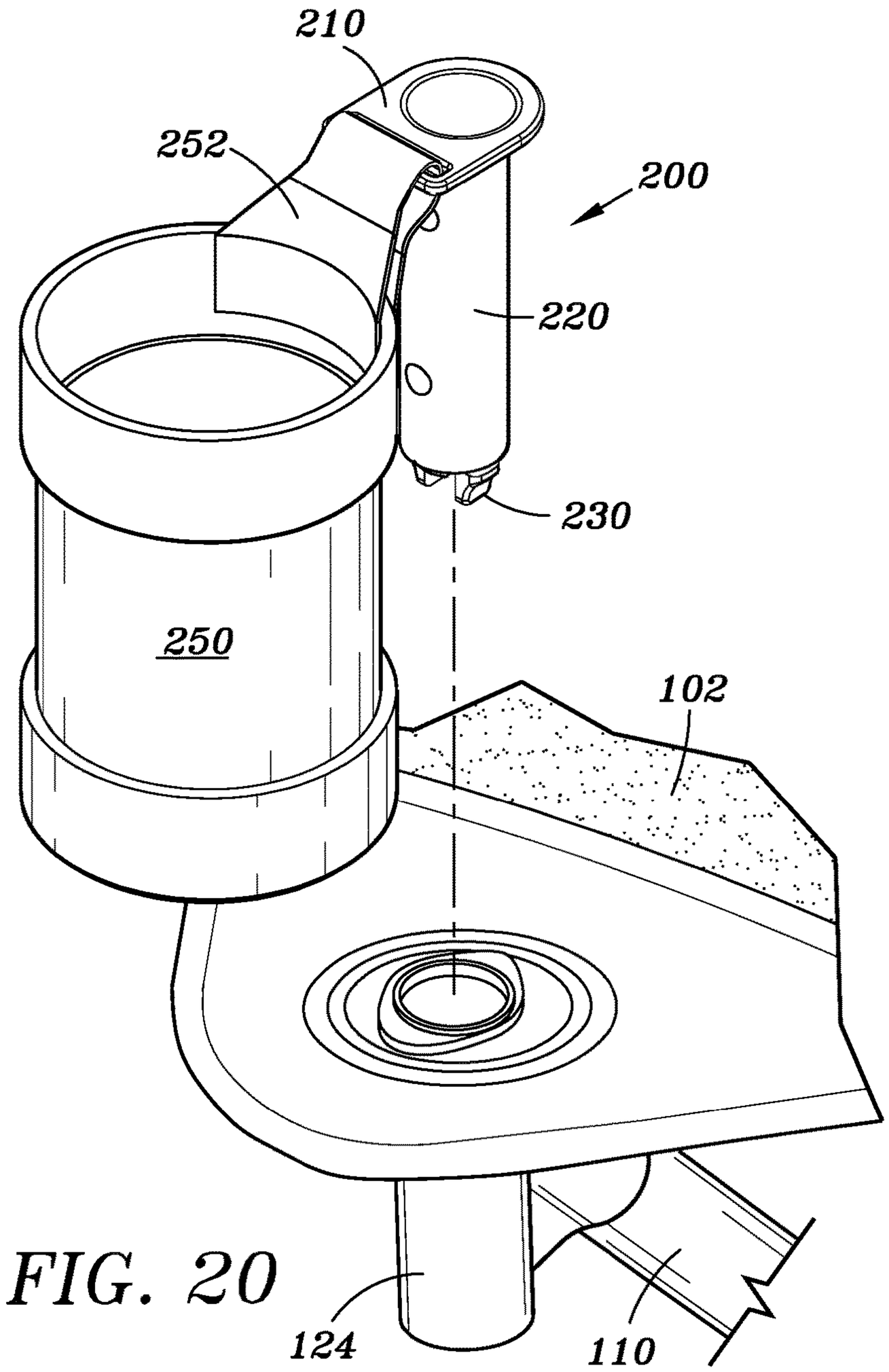


FIG. 20

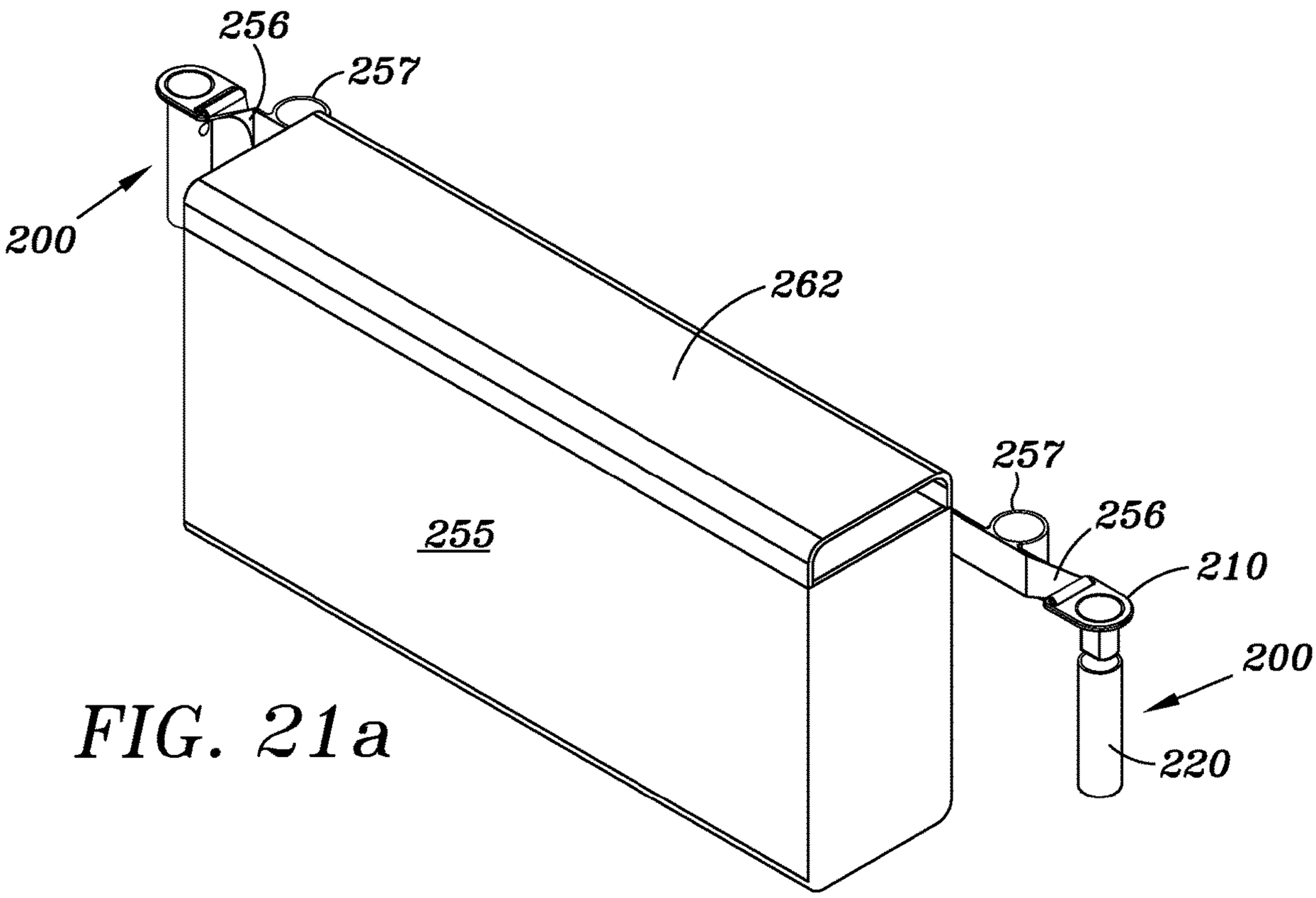


FIG. 21a

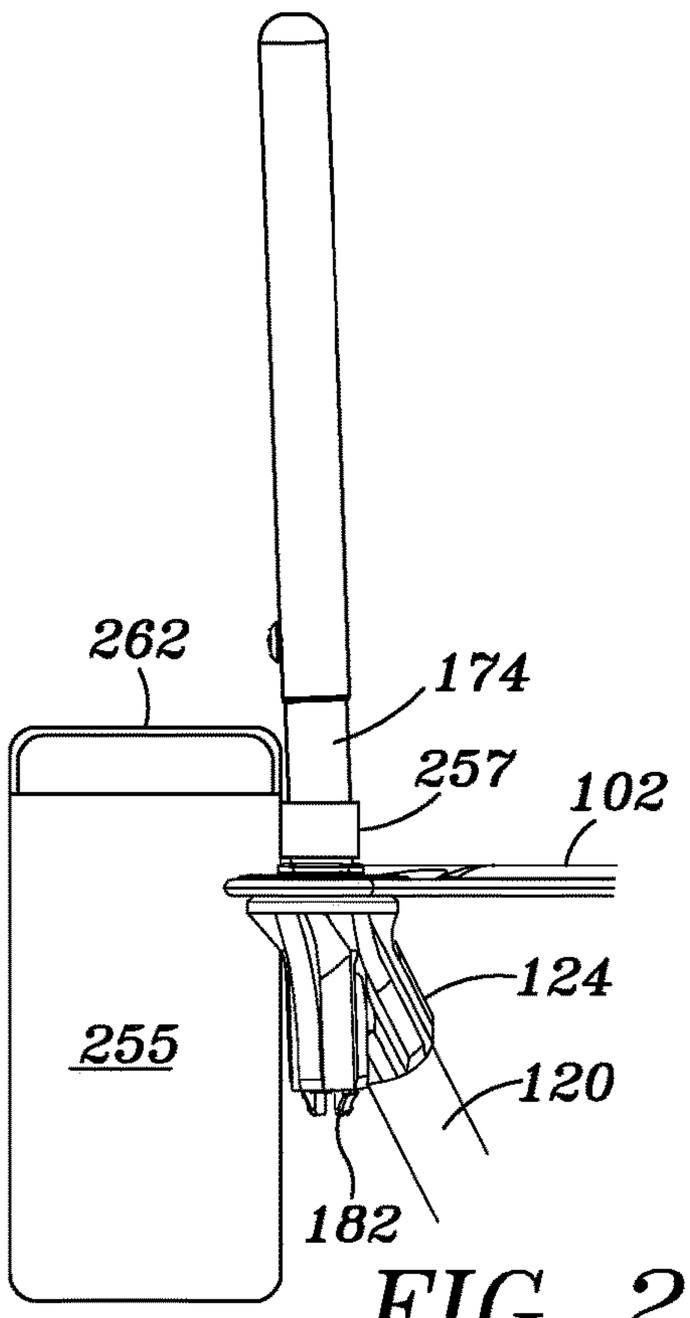


FIG. 21c

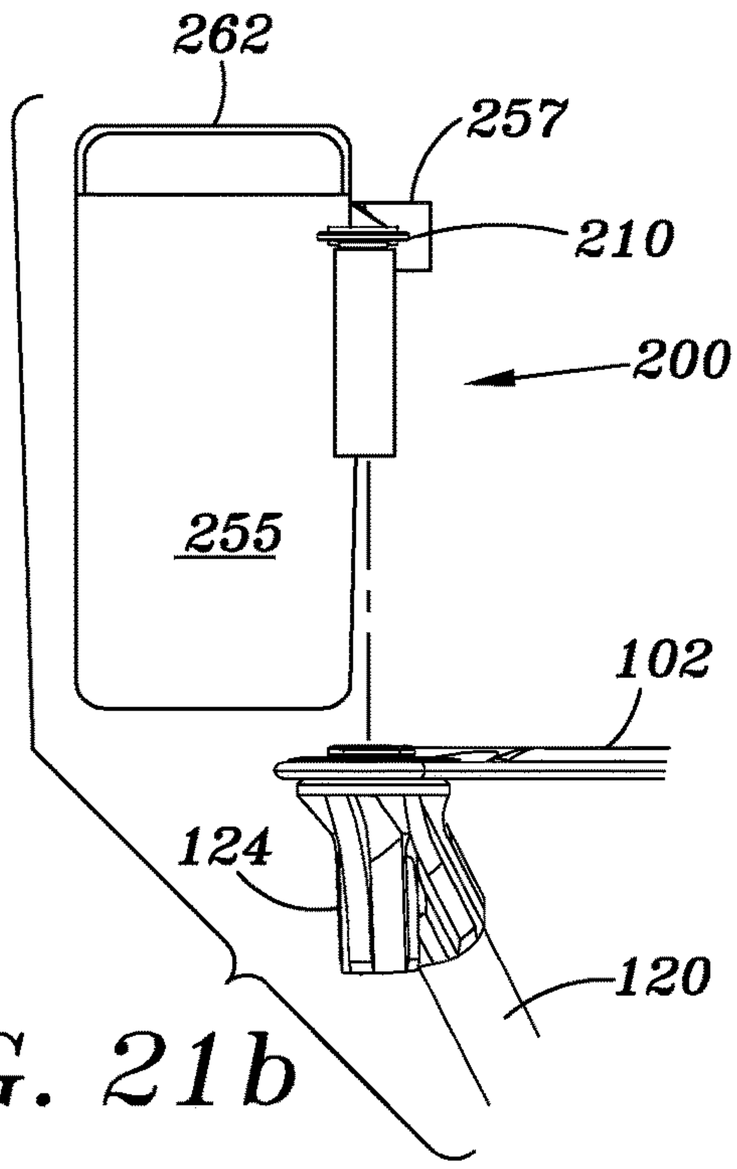


FIG. 21b

COLLAPSIBLE SWIVEL CHAIR

CONTINUATION

This application claims priority to a previously filed utility application having application Ser. No. 15/661,895, filed on Jul. 27, 2017, and titled COLLAPSIBLE SWIVEL CHAIR.

BACKGROUND OF INVENTION

Field of the Invention

This invention relates to chairs. More particularly, this invention relates to collapsible all-terrain seating.

Description of Related Art

In recent years, lightweight and personalized seating has become popular for outdoor enthusiasts and sports fans alike. With the development of lightweight durable material, folding chairs are more easily carried by a user to and from outdoor seating areas. In essence, the lightweight collapsible chair has provided greater seating mobility. However, this conventional folding chair has its limits and is not well suited to provide comfortable seating when placed on uneven terrains and does not provide the user the ability to turn from side to side once seated in the chair, rather, the user's body is set in a forward-facing direction and the user must turn their head or get up and reposition the chair to change their direction of sight. In addition, the conventional folding chair is not functional for hunters or other sportsmen who are seated in the chair for sporting activities—which can include gun or bow hunting, fishing, and bird watching because they cannot turn quickly and quietly to face the target. A need exists for an all-terrain collapsible chair that allows the user to quickly and quietly swivel to face the desired target.

SUMMARY OF THE INVENTION

The following is a summary to introduce selected concepts of the invention but intended to limit the scope of the invention in any way.

The chair includes a seat, legs, and a swivel assembly. The leg assembly can include arms, legs, and the swivel assembly disposed therebetween. A foot may be pivotally or rotationally affixed to the distal end of each leg, and the foot can be configured to adjust to uneven ground surfaces while providing stability to the chair. Each leg may be extendable and may include a leg lock to secure the leg in an elected extended position so that the seat provides a level seating surface to the user despite an unlevel ground surface. The chair can also include the swivel assembly, having a lower swivel hub and an upper swivel hub. The swivel assembly allows the seat to rotate about the central axis of the chair and independently of the legs. The swivel assembly provides several advantages to the user, including the ability to swivel silently to face a new direction. The arms are pivotally connected to the upper swivel assembly and can be locked by way of an arm lock mechanism, which will keep the arms in an "open" position so that the chair does not collapse when a user sits on the seat. The lower swivel hub, upper swivel hub, and arm lock can be collectively referred to as the "swivel mechanism." A receiver joint can be connected to the distal end of each arm. The seating surface can be removably connected to the receiver joints to provide a comfortable seat for any user. A seat back assembly can be connected to the chair by inserting seat posts into the receiver joints. One or more accessories can be connected to the chair by clipping into a receiver joint or clipping onto the seat posts.

Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the presently described apparatus and method of use.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

The accompanying drawings illustrate various exemplary implementations and are part of the specification. The illustrated implementations are proffered for purpose of example, not for purpose of limitation.

Illustrated elements will be designated by numbers. Once designated, an element will be identified by the identical number throughout. Illustrated in the accompanying drawings is at least one of the best mode embodiments of the present disclosure.

FIG. **1** depicts an isometric view of the chair in an open, or non-collapsed, configuration, as discussed and described herein;

FIG. **2** depicts a cross-sectional, exploded view of the swivel assembly and the arm lock, as discussed and described herein.

FIG. **3** depicts a cross-sectional assembled view of the swivel assembly and the arm lock, as shown and described herein.

FIG. **4** depicts a perspective side view of the swivel components, as shown and described herein.

FIG. **5** depicts a side view of a portion of the chair showing the collapsed and open positions, as shown and described herein.

FIG. **6** depicts a view of the swivel mechanism and arm lock positioned in the unlocked position, as shown and described herein.

FIG. **7** depicts a view of the swivel mechanism and arm lock positioned in the locked position, as shown and described herein.

FIG. **8** depicts a side view of the arm lock, as shown and described herein.

FIG. **9** depicts a side view of the chair set on an unlevel surface, as shown and described herein.

FIG. **9***a* depicts a close up view of the arm lock in the locked position, as shown and described herein.

FIG. **10***a* depicts a side view of a foot, as shown and described herein.

FIG. **10***b* depicts another side view of a foot, as shown and described herein.

FIG. **11** depicts a bottom view of a foot, as shown and described herein.

FIG. **12** depicts a perspective view of the chair and insertion of the seat back assembly, as shown and described herein.

FIG. **13** depicts a top-side view of the chair, as shown and described herein.

FIG. **14** depicts a side view of the seat post and seat post clip, as shown and described herein.

FIG. **15** depicts a cross sectional view of a receiver joint, as shown and described herein.

FIG. **16** depicts a side view of a receiver joint identifying the arm connection, as shown and described herein.

FIG. **17** depicts a cross sectional view of the arm connection of a receiver joint, as shown and described herein.

FIG. **18***a* depicts a top-side view of a portion of the seat displaced on the receiver joint, as shown and described herein.

FIG. **18***b* depicts a cross sectional view of the seat secured to the receiver joint, as shown and described herein.

FIG. **18***c* depicts a cross sectional view of the seat removal from receiver joint, as shown and described herein.

FIG. **19** depicts a side view of the accessory attachment assembly, as shown and described herein.

FIG. **20** depicts a side view of the accessory attachment assembly and accessory attaching to the chair, as shown and described herein.

FIG. **21***a* depicts a perspective view of an alternative accessory and accessory attachments, as shown and described herein.

FIG. **21***b* depicts a side view the alternative accessory positioned for connecting to the chair, as shown and described herein.

FIG. **21***c* depicts a side view of the alternative accessory connected to the chair, as shown and described herein.

DETAILED DESCRIPTION OF THE INVENTION

The collapsible swivel chair will be more fully understood and appreciated by reading the following Detailed Description in conjunction with the accompanying drawings, wherein like reference numerals refer to like components.

In various embodiments of the chair described herein, the chair is collapsible, swivels, is easily portable, and is designed to provide a sturdy seating surface for a user even when the ground surface is uneven and/or soft. The chair can be collapsed for easier transportation from one located to another. This can be accomplished by several methods, including a carrying strap connected to the chair or inserting the chair into a bag or case specifically designed for portability. The chair can be expanded, or "opened", from the collapsed configuration into a seating configuration, providing a seating surface for a user.

FIG. **1** depicts an isometric view of the chair **100** in an open configuration. The chair **100** can include a seat **102** and a support assembly. The support assembly can include one or more legs **110**, one or more arms **120**, a swivel assembly **130**, and an arm lock **160**. The legs **110** of the chair **100** can be extendable and secured at a selected length by the leg lock **112**. A foot **114** can be pivotally or rotationally connected to the distal end of one or more of the legs **110**. The chair can also include a seat back assembly **170** to provide back support to a user seated on the seat **102** of the chair **100**. The seat back assembly can include a back rest **172** positioned to accommodate a user's back by attachment to one or more seat posts **174**.

The swivel assembly **130** can include an upper swivel hub **132** and a lower swivel hub **134**, and the swivel assembly **130** can be designed so that the upper swivel hub **132** can swivel, or rotate, independent of the lower swivel hub **134**. The proximal end of each leg **110** can be pivotally connected to the lower swivel hub **134** and the proximal end of each arm **120** can be pivotally connected to the upper swivel hub **132**. Accordingly, when the chair is in the open position and is placed on the ground, the upper swivel hub **132** and all chair components above it may swivel about the central axis of the chair in relation to the lower swivel hub **134** and the legs **110** therefrom.

The distal end of each arm **120** can be connected to a receiver joint **124**. As depicted herein, the chair can include three or more arms **120**, and the number of arms can directly relate to the shape of the seat **102**. As shown, three arms **120** can provide adequate support to a triangular seat **102** by connecting, via the receiver joint **124**, the distal end of each arm **120** to a corresponding corner of the seat **102**. In such an arrangement, the arms **120** can provide sufficient support to the chair **100** when in use.

FIG. **2** is a cross-sectional, exploded view of the swivel assembly **130** and the arm lock **160**. FIG. **3** is a cross-sectional assembled view of the swivel assembly **130** and the arm lock **160**. The swivel assembly can include the upper swivel hub **132** and the lower swivel hub **134**, and swivel capable component(s) disposed therebetween so that the hubs rotate about a central axis C in relation to one another. In one or more embodiments, the swivel assembly **130** and arm lock **160** can include a bolt **131**, a first flat washer **139**, the arm lock **160**, the upper swivel hub **132**, a second flat washer **140**, a thrust bearing washer **141**, a third flat washer **143**, an internal block **136**, the lower swivel hub **134**, a first nut **144**, a second nut **145**, or a combination thereof. The swivel components disposed between the hubs **132**, **134** can include the internal block **136**, the one or more flat washers **140**, **143**, one or more of the thrust bearing washers **141**, or any combination thereof.

The thrust bearing washer can be a self-lubricating thrust bearing washer and can be made of brass, aluminum, aluminum alloy, steel, copper, or another common metal or alloy used in the production of hardware. In an alternative embodiment, the thrust bearing washer **141** can be made of plastic, including any polymer sufficient to provide the necessary function.

The internal block **136** can include one or more flanges **137** (two are shown) to prevent the internal block **136** from rotating in relation to the lower swivel hub **134**. Each flange **137** can be aligned with a hole or void in the lower swivel hub **134** to prevent lateral and/or rotational movement of the internal block **136**.

One or more of the components of the swivel assembly and arm lock can have a channel or hole through its center so that, when assembled, these holes line up to form the central axis C. The arm lock **160** can have a ring mount configured to fit into an arm lock cavity disposed about the top surface of the upper swivel hub **132**. The upper swivel hub **132** can also have a cavity, or "upper block cavity," disposed about its bottom surface configured to receive at least a first portion of the swivel components. The lower swivel hub **134** can have a corresponding cavity, or "lower block cavity," disposed about its top surface and configured to receive at least a second portion of the swivel components.

FIG. **4** is a perspective side view of the swivel components. In one or more embodiments, the swivel components can be arranged as shown, a flat washer **140** positioned on top of the thrust bearing washer **141**, and the thrust bearing washer **141** positioned on top of another flat washer **143**. The washers **140**, **141**, **143** can then be positioned on the top surface of the internal block **136**. A lubricant (i.e., grease) can be applied to the thrust bearing washer **141**. Once lubricated, the thrust bearing washer **141** will remain lubricated.

The internal block **136** can then be positioned within the lower block cavity of the lower swivel hub **134** in such a way that the internal block **136** does not rotate in relation to the lower swivel hub **134**.

Once assembled, as shown in FIG. **3**, the bolt **131** can be disposed through the central axis to secure the swivel assembly **130** and arm lock **160** in the assembled arrangement. As shown, the bolt can be disposed downward through the swivel assembly **130** and arm lock **160** and secured at the bottom of the lower swivel hub **134** by a first nut **144** and, optionally, a second nut **145** In one or more embodiments, a locking solution can be applied to the first and/or second nut **144**, **145**. Optionally, an additional flat washer (one is shown, **139**) can be disposed about the top surface of the arm lock **160**.

The upper swivel hub **132** can include one or more arm connectors **146** for connecting each arm **120** to the upper swivel hub **132**. Similarly, the lower swivel hub **134** can include one or more leg connectors **147** for connecting each leg **110** to the lower swivel hub **134**.

The chair can be collapsed by folding the arms **120** and legs **110** in toward the central axis C. FIG. **5** depicts a side view of a portion of the chair showing the collapsed position (solid lines) and open position (broken lines). Each leg **110** and each arm **120** can be moved to the collapsed position by simply moving the leg **110** toward the central axis C of the chair.

The proximal end of each arm **120** can be connected to the upper swivel hub **132** at the arm connector **146** and configured to rotate or pivot about a connection point. As show, the arm connector **146** can include a bolt disposed through a hole in the proximal end of the arm **120** and secured to the upper swivel hub **132** by securing the bolt with a nut. As such, the bolt serves as a connection point about which each arm **120** rotates when moving from the open to closed position, and vice versa. The legs **110** can be connected to the lower swivel hub **134** in the same or similar manner via leg connectors **147**, such that the bolt disposed through the proximal end of each leg allows the leg **110** to move from the open to closed position, and vice versa. In one or more embodiments, a connection cap or end piece can be disposed on the proximal end of one or more of the arms **120** and/or legs **110** to provide more durability and stability to the respective connection points.

The arms **120** can be collectively locked into the open position or collectively unlocked by rotating the arm lock **160**. FIG. **6** shows the arm lock **160** in the "unlocked" position. When the arm lock **160** is in the unlocked position, the arms **120** can each pivot about the arm connectors **146**. This makes it easy for a user to collapse the chair by folding the arms **120** toward the central axis C, as shown in FIG. **5**.

However, when the arm lock **160** is moved to the "locked" position, as shown in FIG. **7**, the arms **120** are secured in the open position and cannot be collapsed toward the central axis C. This is exceptionally beneficial to a user sitting on the seat **102**. When weight is disposed on the seat **102** a downward force naturally causes the center of the seat to move downward, thereby collapsing the legs **110** toward the center axis C of the chair. This collapsing of the arms **120** creates an ineffective and uncomfortable seating surface not capable of supporting the user. However, when the arm lock **160** locks the arms **120** open, the seat **102** will not collapse.

FIG. **8** depicts a bottom perspective view of the arm lock **160**. As shown, the arm lock **160** can include three wings, though in other embodiments the number of wings can change to match the number of arms. In the locked position, each wing aligns with a corresponding arm **120** and secures that arm **120** in the open position. Each wing can include a turning grip **162** to allow the user to better grip the arm lock **160** to turn it to the desired position.

FIG. **9** depicts a side view of the chair set on unlevel ground. The chair is shown in the open position, and FIG. **9***a* provides a closeup view of the arm lock **160** engaging the arm **120** to prevent the arm **120** from moving inward and, inevitably, collapsing from any weight placed on the seat **102**.

In order to level the seat **102** of the chair on an unlevel or uneven surface, the length of one or more of the legs **110** can be adjustable. Each leg **110** can include an outer tubular member and an inner tubular member, and the diameter of the outer tubular member can be larger than the diameter of the inner tubular member such that the outer and inner tubular members can adjust the length of the leg **110** telescopically. A leg lock **112** can lock the tubular members of a leg **110** to establish a desired length of the leg **110**. The leg lock **112** can fix the axial position of the inner tubular member relative to the outer tubular member. The leg lock **112** can be rotated axially to tighten, secure, or lock, the leg **110** at a desired length. The leg lock **112** can rotated in the opposite axial direction to unlock the tubular members of the leg **110**, allowing the length of the leg **110** to be extended or reduced.

Each leg **110** can also include a foot **114**. As shown in FIGS. **10***a* and **10***b*, the foot **114** can be pivotally connected to the distal end of each leg **110**. The foot **114** can pivot about a connection joint **111** to further adapt the chair to uneven ground. The user may desire to completely fold in each foot to further reduce the diameter of the collapsed chair, as shown in FIGS. **5** and **10***b*. In an alternative embodiment, the foot **114** can be rotationally connected (i.e., ball-and-joint) to the distal end of the leg **110**. Referring to FIG. **11**, the foot can provide a wide contact surface to reduce the likelihood that the leg **110** will stick or be otherwise negatively affected by soft ground.

As shown in FIG. **12**, the seat back assembly **170** can be removable from the chair. One or more seat post clips **180** can be disposed about the bottom of each seat post **174** and configured to connect to the receiver joints **124** of the chair. The seat back **172** can be appropriately sized so that, once connected to the seat posts **174**, the seat posts **174** are the proper distance D_1 apart so that they provide a taught and supportive seat back for a person seated in the chair.

As shown in FIG. **13**, the components of the chair can be configured in an equilateral triangular embodiment so that the length between the first and second D_1, second and third D_2, and third and first D_3 receiver joints **124** is equidistant, or about equidistant. The symmetric design provides stability to the chair while allow the user to sit and face any direction comfortably.

As shown in FIG. **14**, a seat post clip **180** can be connected to a bottom end of each seat post **174**. The seat post clip **180** can have a button **184** that is mechanically and/or outwardly biased (i.e., spring loaded) so that the button **184** will engage a hole **176** disposed in the seat post **174**, to secure the seat post clip **180** to the seat post **174**. One or more wing clips **182** can extend from the seat post clip **180**. The wing clips **182** can be spring loaded and configured to attach the seat post **174** and seat post clip **180** combination to the receiver joint **124**.

The receiver joint **124** is configured to attach to at least the arms **120**, the seat posts **174**, the seat **102**, or a combination thereof. FIG. **15** depicts a cross sectional view of a receiver joint **124** with the seat post **174** and seat post clip **180** combination disposed therein. The seat post can be sized and oriented so that the seat post can slide downward into a seat post receiving channel within the receiver joint **124**. The seat

post **174** can slide into the seat post receiving channel until the wing clips **182** "clips" the seat post **174** into position.

The receiver joint **124** also attaches to the distal end of each arm **120** via an arm receiving channel. FIG. **16** depicts a side view of the receiver joint **124** slidably connected to the distal end of the arm **120**. One or more ridges can extend from the arm receiving channel and from the arm **120** to provide a secure attachment and to prevent axial rotation of the arm **120** in relation to the receiver joint **124**. FIG. **17** depicts a cross sectional view of the arm connection of a receiver joint.

The seat **102** can be configured to connect to the one or more receiver joints **124**. In one or more embodiments, as shown in FIGS. **18***a*, **18***b*, and **18***c*, the seat **102** can have a hole disposed through the seat **102** at each corner and configured to removably attach to a receiver joint **124**. FIG. **18***a* depicts a top-side view of a portion of the seat **102** disposed on the receiver joint **124**. The seat **102** can include an attachment ring **104** configured to attach to the receiver joint **124**. The receiver joint **124** can include a rim or lip **126** configured to attach to the attachment ring **104** of the seat **102**. The lip **126** can be located at the top of the receiver joint **124** and can generally extend around the circumference of seat post receiving channel. The lip **126** can have a thin portion and a broad portion, and the thin portion can be disposed toward the inside of the seat **102**. In an alternative embodiment, the seat **102** can be connected to the top of the receiver joint **124** by other attachment means.

FIG. **18***b* depicts a cross sectional view of the seat **102** disposed on the receiver, joint **124**. As shown, the attachment ring **104** can include a stretchable material configured to fit over a rim or lip **126** of the receiver joint **124**. To remove the seat **102** from the chair, a user can pull the seat **102** so that the attachment ring **104** slips over the thin portion of the lip **126** first, then pull the seat **102** upward to slip the attachment ring **124** over the thick portion of the lip **126**.

One or more accessories can be connected to the chair. FIG. **19** depicts a side view of the accessory attachment assembly **200**. The accessory attachment assembly **200** can include an accessory receiver **210**, an attachment tube **220**, an attachment clip **230**, or a combination thereof. The accessory attachment assembly **200** can also include an accessory strap slot. The accessory receiver **210** can be configured to attach to the top terminus of the attachment tube **220** and the attachment clip **230** can be configured to attach to the bottom terminus of the attachment tube **220**. The accessory receiver **210** and the attachment clip **230** can each have an outwardly biased (i.e., spring loaded) button configured to be disposed through a hole in the attachment tube **220**. In an alternative embodiment, the accessory receiver **210** and the attachment clip **230** can be connected to the attachment tube **220** by another attachment means, including: glue, male and female threading, ect. As shown in FIG. **20**, an accessory **250** (a cup holder is shown) can be connected to the accessory attachment assembly by a strap **252** disposed through the accessory strap slot. The accessory attachment **200** assembly can be inserted into the leg post channel of the receiver joint **124** of the seat.

One or more alternative attachments may require more support, and need to be connected to the chair at two contact points. FIG. **21***a* depicts a perspective view of an alternative attachment **255**. This alternative attachment **255** can be connected to two accessory attachment assemblies **200**, one at each end, via an alternative support strap **256** and can include one or more support loops **257**. The support loops can be configured to attach to the seat posts **174**. The alternative attachment can include a lid **162**.

FIG. **21***b* depicts a side view the alternative accessory **255** positioned for connecting to the chair. In this alternative embodiment, the accessory attachment assembly **200** can occupy the same receiver joints **124** as the seat posts **174** of the seat back assembly. To do so, the attachment clip can be absent from the accessory attachment assembly **200**. With the accessory attachment assembly **200** inserted into two of the receiver joints, the seat back assembly can then be connected to the chair by inserting the seat posts **174** through the attachment tube **220** disposed in the receiver joint **124**. The seat post dips **182** can then "clip," or otherwise secure, the seat posts **174** and accessory assembly into place. FIG. **21***c* depicts a side view of the alternative accessory connected to the chair.

Although the present invention has been described with respect to specific details, it is not intended that such details be regarded as limitations on the scope of the invention, except to the extent that they are included in the accompanying claims. It will thus be appreciated that those skilled in the art will be able to devise numerous alternative arrangements that, while not shown or described herein, embody the principles of the invention and thus are within its spirit and scope.

We claim:

1. A swivel mechanism, comprising:

a lower swivel hub and an upper swivel hub sharing a common central axis;

an internal block seated in a lower cavity of the upper swivel hub and seated in an upper cavity of the lower swivel hub, wherein the internal block is contained entirely within the lower swivel hub and upper swivel hub;

a bearing assembly disposed on a top surface of the internal block and between the internal block and the upper swivel hub; and

a bolt disposed through the lower swivel hub, upper swivel hub, and internal block, and forming the common central axis of the swivel mechanism.

2. The swivel mechanism of claim **1**, further comprising a bearing assembly disposed on a top surface of the internal block, wherein the bearing assembly comprises a first flat washer, a thrust bearing washer, and a second flat washer stacked on top of one another.

3. The swivel mechanism of claim **1**, wherein the bearing assembly comprises a first flat washer, a thrust bearing washer, and a second flat washer all having a similar diameter and stacked on top of one another.

4. The swivel mechanism of claim **1**, wherein the internal block is rotationally fixed to the lower swivel hub and wherein the bearing assembly provides rotational means for the upper swivel hub in relation to the internal block and lower swivel hub.

5. The swivel mechanism of, claim **4**, wherein one or more flanges extend from the bottom surface of the internal block and engage the lower swivel hub to prevent rotation related thereto.

6. The swivel mechanism of claim **5**, wherein the bearing assembly is self-lubricating.

7. The swivel mechanism of claim **1**, wherein at least one of the lower swivel hub and the upper swivel hub independently rotate about the axis.

8. The swivel mechanism of claim **1**, wherein the lower swivel huh and the upper swivel hub are spaced apart from one another.

9. A swivel mechanism, comprising:

a lower swivel hub, an upper swivel hub, and an arm lock, a sharing a common central axis;

an internal block seated in an upper cavity of the lower swivel hub;

a bearing assembly, comprising a first flat washer, a thrust bearing washer stacked thereon, and a second flat washer stacked thereon,

wherein the bearing assembly is disposed on the top surface of the internal block and the upper swivel hub is seated on the internal block at a lower cavity of the upper swivel hub; and

a bolt disposed through the lower swivel hub, the upper swivel hub, the arm lock, and the internal block and forming the common central axis, wherein the arm lock is rotatable with the upper swivel hub when the arm lock is in a locked position.

10. The swivel mechanism of claim 9, wherein the bearing assembly is self-lubricating.

11. The swivel mechanism of claim 9, wherein the arm lock is selectively movable between a locked position and an unlocked position by rotating about its central axis.

12. The swivel mechanism of claim 9, wherein at least one of the lower swivel hub and the upper swivel hub independently rotate about the axis.

13. A swivel mechanism, comprising:

a lower swivel hub, an upper swivel hub, and an arm lock, all sharing a common central axis;

an internal block seated in an upper cavity of the lower swivel hub;

a bearing assembly, comprising a first flat washer, a thrust bearing washer stacked thereon, and a second flat washer stacked thereon,

wherein the upper swivel hub is seated on the internal block and bearing assembly at a lower cavity of the upper swivel hub;

wherein the arm lock is seated in an upper cavity of the upper swivel hub; and

a bolt disposed through the lower swivel hub, the upper swivel hub, the arm lock, and the internal block and forming the common central axis, wherein the arm lock is rotatable with the upper swivel hub when the arm lock is in a locked position.

14. The swivel mechanism of claim 13, wherein the arm lock, upper swivel hub, and lower swivel hub rotate in relation to one another about the central axis.

15. The swivel mechanism of claim 13, wherein the arm lock is selectively movable between a locked position and an unlocked position by rotation about its central axis.

16. The swivel mechanism of claim 13, wherein at least one of the lower swivel hub and the upper swivel hub independently rotate about the axis.

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